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Mother's Exposure to Electromagnetic Fields before and during Pregnancy is Associated with Risk of Speech Problems in Offspring

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Abstract

Background: Rapid advances in technology, especially in the field of telecommunication, have led to extraordinary levels of mothers' exposures to radiofrequency electromagnetic fields (RF-EMFs) prior to or during pregnancy.

Objective: The main goal of this study was to answer this question whether exposure of women to common sources of RF-EMFs either prior to or during pregnancy is related to speech problems in the offspring.

Materials and methods: In this study, mothers of 110 three-to-seven-year-old children with speech problems and 75 healthy children (control group) were interviewed. These mothers were asked whether they had exposure to different sources of EMFs such as mobile phones, mobile base stations, Wi-Fi, cordless phones, laptops and power lines. Chi square test was used to analyze the differences observed between the control and exposed groups.

Results: Statistically significant associations were found between the use of cordless phone and offspring speech problems for both before pregnancy and during pregnancy maternal exposures (P=0.005 and P=0.014, respectively). However, due to high rate of mobile phone use in both groups, this study failed to show any link between mobile phone use and speech problems in offspring. Furthermore, significant associations were observed between living in the vicinity of power lines and speech problems again for both before pregnancy and during pregnancy maternal exposures (P=0.003 and P=0.002, respectively). However, exposure to other sources of non-ionizing radiation was not linked to speech problems. Moreover, exposure to ionizing radiation (e.g. radiography before and during pregnancy) was not associated with the occurrence of speech problems.

Conclusion: Although this study has some limitations, it leads us to this conclusion that higher-than-ever levels of maternal exposure to electromagnetic fields could be linked to offspring speech problems.

Keywords: Electromagnetic Fields; Exposure; Ionizing radiation; Non-ionizing Radiation; Pregnancy; Speech Problem.

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